

In the Claims:

Please enter the following amended claim set:

1. (currently amended)A gas discharge source, ~~in particular~~ for generating extreme ultraviolet and/or soft X-radiation, ~~in which a gas-filled intermediate electrode space (3) is located between two electrodes (1, 2), in which devices for the admission and evacuation of gas are present, and in which one electrode (1) exhibits an opening (5) that defines an axis of symmetry (4) and is provided for the discharge of radiation, characterized in that a diaphragm (6), which exhibits at least one opening (7) on the axis of symmetry (4) and operates as a differential pump stage, is present between the two electrodes (1, 2) comprising:~~

a first electrode having an opening therein defining an axis of symmetry and providing an outlet for a discharge of radiation;

a second electrode comprising a hollow electrode substantially completely surrounding a cavity save for an opening therethrough positioned along the axis of symmetry, the second electrode opening facing the first electrode; and

a diaphragm positioned between the first and the second electrode and having an opening positioned along the axis of symmetry, the diaphragm acting as a differential pump stage, a space between the diaphragm and the first and the second electrode comprising an intermediate electrode space adapted for being filled with a gas, wherein:

the first electrode has a gas inlet leading into the intermediate electrode space from exterior the first electrode; and

the second electrode has a gas inlet leading into the intermediate electrode space from exterior the second electrode, the second electrode gas inlet not in direct fluid communication with the cavity.

2. (currently amended)A gas discharge source as claimed in claim 1, ~~characterized in that~~ wherein the gas pressure in ~~[[the]] a~~ part-area of the gas-filled intermediate electrode space ~~[[((3))]]~~ defined by the diaphragm ~~[[((6))]]~~ and the second electrode ~~(2) that faces away from the discharge side of the radiation~~ is greater than in ~~[[the]] a~~ part-area of the gas-filled intermediate electrode space ~~[[((3))]]~~ defined by the diaphragm ~~[[((6))]]~~ and the first electrode ~~(1) that faces towards the discharge side of the radiation.~~

3-4. (canceled)

5. (currently amended)A gas discharge source as claimed in claim 1, ~~characterized in that~~ wherein at least a portion of the diaphragm ~~[[((6))]]~~ comprises ~~ceramics~~ a ceramic material.

6. (currently amended)A gas discharge source as claimed in claim 1, ~~characterized in that~~ wherein the diaphragm ~~[[((6))]]~~ comprises a discharge-resistant material, ~~at least in an area (10) close to its~~ adjacent the discharge opening ~~[[((7))]]~~.

7. (currently amended)A gas discharge source as claimed in claim 1, characterized in that ~~wherein the diaphragm comprises~~ multiple metallic diaphragms (6, 6', 6''), separated from one another by isolators (11), are present and multiple isolators for separating the diaphragms.

8. (currently amended)A gas discharge source as claimed in claim 1, characterized in that, in the direction of wherein, along the axis of symmetry ~~[[4]]~~, the diaphragm ~~[[6]]~~ extends ~~[[to]]~~ between 1 mm and 20 mm.

9. (currently amended)A gas discharge source as claimed in claim 1, characterized in that wherein the opening ~~[[7]]~~ of the diaphragm ~~[[6]]~~ has a diameter between 4 mm and 20 mm.

10. (currently amended)A gas discharge source as claimed in claim 1, characterized in that ~~gas inlets are present with openings~~ wherein the second electrode gas inlet has an opening facing towards the toward a second part-area of the gas-filled intermediate electrode space ~~[[3]]~~ defined by the diaphragm ~~[[6]]~~ and by the second electrode (2) facing away from the discharge side of the radiation.

11. (currently amended)A gas discharge source as claimed in claim 1, characterized in that ~~gas inlets are present with openings~~ wherein the first electrode gas inlet has an opening facing towards the toward a first part-area of the gas-filled

intermediate electrode space ~~[(3)]~~ defined by the diaphragm ~~[(6)]~~ and by the first electrode (1) ~~facing towards the discharge side of the radiation.~~

12-14. (canceled)

15. (currently amended)A gas discharge source as claimed in claim 4, ~~characterized in that the gas mixture in 10, wherein~~ the intermediate electrode space (3) ~~comprises~~ is adapted for containing a working gas used for the gas discharge and, ~~in addition, at least one further filler gas, which, by comparison with the working gas,~~ ~~exhibits~~ exhibiting lower radiation losses than the working gas.

16. (currently amended)A gas discharge source as claimed in claim 4, ~~characterized in that it is mainly 15, wherein the first part-area contains a greater proportion of~~ the working gas than the filler gas ~~that is contained in the gas mixture in the part-area of the gas-filled intermediate electrode space (3) defined by the diaphragm (6) and by the electrode (1) facing towards the discharge side of the radiation, and it is mainly the second part-area contains a greater proportion of~~ the filler gas than the working gas ~~that is contained in the gas mixture in the part-area of the gas-filled intermediate electrode space (3) defined by the diaphragm (6) and by the electrode (2) facing away from the discharge side of the radiation.~~

17. (currently amended)A gas discharge source as claimed in claim 1, ~~characterized in that the~~ wherein the first electrode opening is adapted for evacuation of

the intermediate electrode space ~~(3) takes place through the opening (5) of the electrode (1) facing towards the discharge side of the radiation.~~

18. (currently amended)A gas discharge source as claimed in claim 1, ~~characterized in that the electrode (2) facing away from the discharge side of the radiation is used as the~~ wherein the second electrode comprises a cathode.

19. (currently amended)A gas discharge source as claimed in claim 1, ~~characterized in that the electrode~~ wherein a spacing and ~~[[the]]~~ a gas pressure between the electrodes first and the second electrode are selected such that the gas discharge takes place on ~~[[the]]~~ a left branch of ~~[[the]]~~ a Paschen curve.